



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786)315-2590 F (786) 31525-99

www.miamidade.gov/economy

Firestone Building Products Company, LLC
250 East 96th Street
Indianapolis, IN 46240-3702

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Firestone Modified Bitumen Roof Systems over Recover Decks.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No.10-1230.01 and consists of pages 1 through 59.

The submitted documentation was reviewed by Jorge L. Acebo.



NOA No.: 11-0119.08
Expiration Date: 03/08/16
Approval Date: 05/02/13
Page 1 of 59

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Modified Bitumen
Material: APP/SBS
Deck Type: Recover
Maximum Design Pressure: See Specific Deck assemblies

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product	Dimensions	Test Specification	Product Description
APP 80 Glass Base	39.4" x 65'4"	ASTM D6509	Fiberglass reinforced modified bitumen, smooth surfaced base sheet.
SBS Glass Torch Base	39.4" x 33'10"	ASTM D6163	Modified bitumen base sheet with a burn-off film and reinforced with non-woven fiberglass mat.
SBS Base	39.4" x 50'	ASTM D6163	Fiberglass reinforced SBS base sheet. Applied in hot asphalt or mechanically attached.
SBS Premium Base	39.6" x 50'	ASTM D6163	Fiberglass reinforced SBS base sheet. Applied in hot asphalt or Multi-Purpose MB Cold Adhesive.
SBS PolyBase	39.6" x 50'	ASTM D6164	A smooth surfaced, non-woven polyester reinforced, modified bitumen base sheet
SBS Poly Torch Base	45" x 39"	ASTM D6164	Fiberglass reinforced modified bitumen membrane, SBS rubber modified asphalt reinforced with a non-woven polyester mat.
Ply IV	33" x 180"	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Ply VI	33" x 180"	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Ply IV (4) M	39.4" x 164.5'	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Ply VI (6) M	39.4" x 164.5'	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
MB Base	36" x 108'	ASTM D4601	Fiberglass reinforced base sheet, asphalt coated on both sides. Applied in hot asphalt or mechanically attached.
MB Base M	39.4" x 98.7'	ASTM D4601	Fiberglass reinforced base sheet, asphalt coated on both sides. Applied in hot asphalt or mechanically attached.



Product	Dimensions	Test Specification	Product Description
SBS Smooth	39.4" x 33'10"	ASTM D6164	Smooth surfaced, modified bitumen membrane reinforced with non-woven polyester mat. Applied in hot asphalt.
APP 160-P	39.4" x 32'9"	ASTM D6222	Polyester reinforced modified bitumen, smooth surfaced membrane. Torch applied.
APP 170 Cool	39.6" x 33'6"	ASTM D6222	Polyester reinforced modified bitumen, smooth surfaced membrane.
APP 180	39.4" x 32'10"	ASTM D6222	Polyester reinforced modified bitumen, granule surfaced membrane. Torch applied.
APP 180-P	39.4" x 32'9"	ASTM D6222	Polyester reinforced modified bitumen, granule surfaced membrane. Torch applied.
APP 180 UltraWhite	39.4" x 32'10"	ASTM D6222	Polyester reinforced modified bitumen, UltraWhite granule surfaced membrane. Torch applied.
APP 180 FR	39.4" x 32'10"	ASTM D6222	Polyester reinforced, fire retardant modified bitumen, granule surfaced membrane. Torch applied.
APP 180 FR UltraWhite	39.4" x 32'10"	ASTM D6222	Polyester reinforced, fire retardant modified bitumen, UltraWhite granule surfaced membrane. Torch applied.
APP 180 Cool	39.4" x 32'10"	ASTM D6222	Polyester reinforced modified bitumen, granule surfaced membrane.
APP 180 FR Cool	39.4" x 32'10"	ASTM D6222	Polyester reinforced, fire retardant modified bitumen, granule surfaced membrane. Torch applied.
SBS Glass	39.4" x 33'10"	ASTM D6163	Fiberglass reinforced, granule surfaced, modified bitumen membrane. Applied in hot asphalt.
SBS Glass FR		ASTM D6163	Fiberglass reinforced, fire rated, granule surfaced, modified bitumen membrane. Applied in hot asphalt.
SBS Glass FR UltraWhite		ASTM D6163	UltraWhite fiberglass reinforced, fire rated, granule surfaced, modified bitumen membrane. Applied in hot asphalt.
SBS Torch	48" x 39"	ASTM D6164	Granule surfaced, SBS cap reinforced with a non-woven polyester mat, with burn off film and fiberglass enhanced

Product	Dimensions	Test Specification	Product Description
SBS Torch UltraWhite	48" x 39"	ASTM D6164	UltraWhite granule surfaced, SBS cap reinforced with a non-woven polyester mat, with burn off film and fiberglass enhanced
SBS FR Torch	48" x 39"	ASTM D6164	Granule surfaced, fire rated, SBS cap reinforced with a non-woven polyester mat, with burn off film and fiberglass enhanced
SBS FR Torch UltraWhite	48" x 39"	ASTM D6164	UltraWhite granule surfaced, fire rated, SBS cap reinforced with a non-woven polyester mat, with burn off film and fiberglass enhanced
SBS Glass FR Torch		ASTM D6163	Fiberglass reinforced, fire rated, granule surfaced, modified bitumen membrane. with burn off film and fiberglass enhanced
SBS Glass FR Torch UltraWhite		ASTM D6163	UltraWhite fiberglass reinforced, fire rated, granule surfaced, modified bitumen membrane. with burn off film and fiberglass enhanced
SBS	39.4" x 33'10"	ASTM D6164	Granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Cap UltraWhite	39.4" x 33'10"	ASTM D6164	UltraWhite granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS FR	39.4" x 33'10"	ASTM D6164	Granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS FR Cap UltraWhite	39.4" x 33'10"	ASTM D6164	UltraWhite granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Premium FR	39.4" x 33'10"	ASTM D6164	Granule surfaced, fire rated, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Premium FR UltraWhite	39.4" x 33'10"	ASTM D6164	UltraWhite granule surfaced, fire rated, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Premium	39.4" x 33'10"	ASTM D6164	Granule surfaced, modified bitumen membrane reinforced with polyester mat. Applied in hot asphalt.
SBS Premium Torch	39.4" x 33'10"	ASTM D6164	Granule surfaced, modified bitumen membrane with a burn-off film and reinforced with non-woven polyester mat.

Product	Dimensions	Test Specification	Product Description
SBS Premium Torch UltraWhite	39.4" x 33'10"	ASTM D6164	UltraWhite granule surfaced, modified bitumen membrane with a burn-off film and reinforced with non-woven polyester mat.
SBS Premium FR Torch	39.4" x 33'10"	ASTM D6164	Granule surfaced, fire rated, modified bitumen membrane with a burn-off film and reinforced with non-woven polyester mat.
SBS Premium FR Torch UltraWhite	39.4" x 33'10"	ASTM D6164	UltraWhite granule surfaced, fire rated, modified bitumen membrane with a burn-off film and reinforced with non-woven polyester mat.
I.S.O. Twin Pack Insulation Adhesive	Dual 750 ml cartridges	Proprietary	A two-component polyurethane insulation adhesive.
I.S.O. FIX II	30 lbs.	Proprietary	A single component polyurethane insulation adhesive.
I.S.O. Stick	5 gal.	Proprietary	A two-component polyurethane insulation adhesive.
Multi-Purpose MB Cold Adhesive	55 gal.	Proprietary	An asphalt based adhesive.
LiquiGard Membrane Adhesive	6 gal.	Proprietary	A two-component, solvent-free, asphalt-based urethane adhesive.
SA Primer	5 gal.	Proprietary	Polymer based primer.

APPROVED INSULATIONS:

TABLE 2		
Product Name	Product Description	Manufacturer (With Current NOA)
ACFoam-II	Isocyanurate Insulation	Atlas Roofing Corp.
ISO 95+ GL, RESISTA	Isocyanurate Insulation	Firestone Building Products Company, LLC
DensDeck, DensDeck Prime, DensDeck DuraGuard	Silicon treated gypsum	Georgia-Pacific Gypsum LLC
Perlite Insulation Board	Perlite Insulation	Generic
ENRGY 3, ENRGY 3 25 PSI	Isocyanurate Insulation	Johns Manville Corp.
Multi-Max-3	Isocyanurate Insulation	Rmax Operating, LLC
SECUROCK Gypsum-Fiber Roof Board	Gypsum Coverboard	United States Gypsum Corporation
FiberTop E	Regular wood fiber insulation	Firestone Building Products Company, LLC

APPROVED FASTENERS:

TABLE 3				
Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Firestone All-Purpose	Insulation and membrane fastener	Various	Firestone Building Products Company, LLC
2.	Firestone Heavy-Duty	Insulation and membrane fastener	Various	Firestone Building Products Company, LLC
3.	Firestone Concrete Drive	1/4" diameter concrete deck fastener.	Various	Firestone Building Products Company, LLC
4.	MB 2" Barbed Metal Seam Plate	Metal plates used for membrane securement.	2" dia	Firestone Building Products Company, LLC
5.	Firestone 2-3/8 Barbed Seam Plate	Membrane seam attachment plate.	2- ³ / ₈ " dia	Firestone Building Products Company, LLC
6.	2" Metal Plate	Membrane attachment plate.	2" dia	Firestone Building Products Company, LLC
7.	Polymer Fastener	Glass reinforced nylon fastener for Gypsum or CWF decks	11/16" dia	Firestone Building Products Company, LLC
8.	Polymer Fastener Insulation Plate	Galvalume plate for use with the Polymer Fastener	3" square	Firestone Building Products Company, LLC
9.	FM-45, FM-60, FM-90 Fasteners and FM-30 Disc	Base ply fastening systems for lightweight concrete decks	Various	ES Products, Inc.
10.	#14 & #15HS Dekfast Fasteners	Insulation and membrane fastener	Various	SFS Intec, Inc.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
11.	Dekfast Galvalume Steel Hex Plate	Insulation and membrane fastener	Various	SFS Intec, Inc.
12.	#12 & #14 Roofgrip	Insulation and membrane fastener	Various	OMG, Inc.
13.	3" Round Metal Plate	Galvalume AZ50 stress plate	3" round	OMG, Inc.
14.	Plastic Plate	Polyethylene stress plate	3.2" round	OMG, Inc.
15.	OMG Fasteners #14 & #15	Insulation and membrane fastener	Various	OMG, Inc.
16.	OMG CR Assembled Base Sheet Fastener	Insulation fastener assembly for lightweight concrete	Various	OMG, Inc.
17.	OMG 3 in. Round Metal Plates	Galvalume AZ55 stress plate	3" round	OMG, Inc.
18.	OMG Strap Toggle	Insulation Fastener		OMG, Inc.
19.	CR Base Sheet Fastener	Corrosion resistant fastener for base sheet attachment to lightweight concrete decks	1.75" long 3" head dia.	OMG, Inc.
20.	Trufast #14 HD Fastener	Insulation and membrane fastener	Various	Altenloh, Brinck & Co. U.S., Inc.
21.	Tru-Fast Fasteners	Insulation and membrane fastener	Various	Altenloh, Brinck & Co. U.S., Inc.
22.	Trufast 3" Metal Insulation Plate	Galvalume AZ50 steel plate	3.23" round	Altenloh, Brinck & Co. U.S., Inc.
23.	Insulation Fastening Plate	Insulation plate for use with Firestone Fasteners	3" round	Firestone Building Products Company, LLC
24.	1.7 in. Assembled LWC Base Ply Fastener	Base ply fastening systems for lightweight concrete decks.		Firestone Building Products Company, LLC
25.	Recessed Metal Plate	Galvalume AZ50 stress plate	3" square	OMG, Inc.
26.	Dekfast Galvalume Steel 3 in. Round	Galvalume AZ50 stress plate	3" round	SFS Intec, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research Corp.	0Z5A3.AM	FM 4470	09/25/09
	2Y3A3.AM	FM 4470	11/28/94
	1D5A8.AM	FM 4470	09/09/98
	3003597	FM 4470	07/14/99
	3004786	FM 4470	05/16/00
	3005030	FM 4470	08/08/00
	0Z5A3.AM	FM 4470	03/08/95
	2Y3A3.AM	FM 4470	11/28/94
	3014692	FM 4470	08/05/03
	3012321	FM 4470	07/29/02
	3022502	FM 4470	01/29/07
	3007328	FM 4470	07/12/02
	3031943	FM 4470	09/25/09
	3033218	FM 4470	08/04/10
	3033921	FM 4470	08/04/10
	3035017	FM 4470	08/04/10
	3009613	FM 4470	03/03/11
	3028093	FM 4470	03/03/11
	3024594	FM 4470	10/18/11
	3022038	FM 4470	10/18/11
	3026542	FM 4470	10/18/11
	3030429	FM 4470	10/18/11
	3040795	FM 4470	03/24/11
	3041534	FM 4470	03/09/11
	3035560	FM 4470	01/11/10
	3038191	FM 4470	08/04/11
	3040306	FM 4470	09/07/11
	3042392	FM 4470	06/08/11
Underwriters Laboratories	R9516	UL 790	01/25/13
Trinity ERD	4810.01.96-1	PA 114(C) & PA 114(D)	01/31/96
	4810.10.96-1-R1	TAS 114-J	03/09/09
	F10370.05.08	ASTM C 1289	05/08/08
	F8800.01.08-R1	TAS 114	04/21/08
	F10500.10.08-1	ASTM D6163	08/26/08
	F31960.05.10-1	ASTM D4977	05/19/10
	F31960.05.10-2	ASTM D4977	05/19/10
	F31960.08.10-1	ASTM D4977	08/25/10
	F31960.08.10-2	ASTM D4977	08/25/10
	F35400.05.11	ASTM Physical Properties	05/31/11
	F41070.08.12	ASTM D6222	08/24/12
	U41790.05.12-2-R2	ASTM D6222	02/11/13
	U41790.05.12-1-R1	ASTM D6222	01/21/13

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Atlantic & Caribbean Roof Consulting, LLC.	ACRC 07-074	TAS 114	12/05/07
PRI Construction Materials Technologies LLC	FBP-018-02-01	ASTM D6163	09/07/04
	FBP-011-02-01	ASTM D6164	09/02/04
	FBP-008-02-01	ASTM D6222	09/10/04
	FBP-009-02-01	ASTM D6222	08/31/04
	FBP-010-02-01	ASTM D6164	09/04/04
	FBP-014-02-01	ASTM D6164	09/02/04
	FBP-015-02-01	ASTM D6509	09/02/04
	FBP-016-02-01	ASTM D6509	09/02/04
	FBP-017-02-01	ASTM D6163	09/13/04
	FBP-019-02-01	ASTM D4601	09/14/04
	FBP-023-02-01	ASTM D6223	09/01/04
	FBP-007-02-01	ASTM D6222	09/14/04
	FBP-020-02-01	ASTM D2178	09/14/04
	FBP-038-02-03	ASTM D6164	01/12/11
	FBP-038-02-04	ASTM D6164	01/12/11
	FBP-038-02-02	ASTM D6164	01/12/11
	FBP-038-02-01	ASTM D6164	12/27/10
	FBP-043-02-03	ASTM D6164	07/26/11
	FBP-043-02-02	ASTM D6164	08/02/11
	FBP-043-02-04	ASTM D6164	07/26/11
	FBP-043-02-01	ASTM D6164	08/02/11
	FBP-042-02-01	ASTM D6164	07/26/11
	FBP-042-02-02	ASTM D6164	07/27/11
	FBP-058-02-01	ASTM D4601	12/12/08
	FBP-057-02-01	ASTM D2178	12/12/08
	FBP-056-02-01	ASTM D2178	12/12/08
	FBP-059-02-01	ASTM D1876	07/20/12
	FBP-087-02-01	ASTM D4798	03/22/13
	FBP-088-02-01	ASTM D4798	03/22/13

APPROVED ASSEMBLIES

Membrane Type: APP

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type A(1): Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Approved Perlite Minimum ¾" thick	N/A	N/A
ACFoam-II Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, ISO 95+ GL or RESISTA Minimum 1.4" thick	N/A	N/A
Multi-Max-3 Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Anchor Sheet: (Optional) One ply of Firestone MB Base or MB Base M with a 4" side lap mechanically fastened to the deck as described below:

Fastening: Fasten anchor sheet with approved fasteners at the side lap 12" o.c. and two rows staggered in the center of the sheet 18" o.c.

Base Sheet: One ply of Firestone MB Base adhered to the insulation with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.. If base sheet is applied directly to polyisocyanurate insulation, only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Ply Sheet: (Optional) One or more plies of Firestone MB Base, Ply IV, Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, applied by torch parallel to the base ply, with the overlaps staggered 12".



- Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:
1. Gravel or slag at 400 lb. and 300 lb., respectively, in a flood coat of approved asphalt at an application rate of 60 lb./sq..
 2. Karnak No. 97, No. 97 AF or No. 169, Henry 520 aluminum, MB aluminum coating or APOC #212 at an application rate of 1½ gal./sq.

Maximum Design
Pressure: -45 psf (See General Limitation #9.)

Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type A(2): Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	N/A	N/A
ACFoam-II Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, ISO 95+ GL or RESISTA Minimum 1.4" thick	N/A	N/A
Multi-Max-3 Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Anchor Sheet: (Optional) One ply of Firestone MB Base or MB Base M with a 4" side lap mechanically fastened to the deck as described below:

Fastening: Fasten anchor sheet with approved fasteners at the side lap 12" o.c. and two rows staggered in the center of the sheet 18" o.c.

Base Sheet: One ply of Firestone MB Base, SBS Base, or Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet: (Optional) One or more plies of SBS Smooth, SBS Base Sheet, or Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.



OR

(Not with MB Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch adhered

OR

(Not with SBS Base, , SBS Smooth) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9.)

Membrane Type: APP/SBS
Deck Type 7I: Recover, Insulated
Deck Description: Concrete
System Type A(3): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the existing deck with OlyBond 500 Adhesive or I.S.O. Stick in ¾" ribbons spaced 12" o.c. or TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in 3-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

System 1:

Base Sheet: One or more plies of Firestone SBS Base, SBS Smooth, SBS PolyBase or SBS Premium Base sheet fully adhered to the insulation with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Smooth, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

System 2:
Base Sheet: One or more plies of Firestone APP 80 Glass BaseCool, , MB Base M, SBS Base, SBS PolyBase or SBS Premium Base sheet fully adhered to the insulation with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.
Membrane: One ply of Firestone, APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.
Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:
1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of Approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
Maximum Design Pressure: -67.5 psf (See General Limitation #9)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type A(4): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the existing deck with OlyBond 500 Adhesive or I.S.O. Stick in ¾" ribbons spaced 12" o.c. or TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in 3-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone APP 80 Glass BaseCool, , Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M Felt, MB Base M, SBS Base, or SBS Premium Base sheet fully adhered to the insulation with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: (Not with APP 80 Glass BaseCool) One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

OR

(Not with APP 80 Glass Base,) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied



within the EVT range and at a rate of 20-40 lbs./sq.
OR

(Not with Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M Felt) One ply of Firestone, APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design
Pressure: -67.5 psf (See General Limitation #9)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type A(5): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the existing deck with OlyBond 500 Adhesive or I.S.O. Stick in ¾" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, SBS Premium FR Torch UltraWhite, APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch applied to the base sheet
OR
One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS Premium adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design Pressure: -120 psf (See General Limitation #9)



Membrane Type: SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type A(6): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane torch applied.

All General and System Limitations apply.

One or more layers of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA Minimum 2" thick	N/A	N/A

Note: Insulation shall be adhered to the existing deck with OlyBond 500 Adhesive or I.S.O. Stick in ¾" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick	N/A	N/A

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, I.S.O. Stick, I.S.O. FIX II, I.S.O. Twin Pack Insulation Adhesive or TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in ribbons 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Note: (Optional) SECUROCK Gypsum-Fiber Roof Board may be primed with ASTM D41 asphalt primer and allowed to dry prior to application of base sheet.

Base Sheet: One or more plies of Firestone SBS Glass Torch Base torch applied.

Membrane: One ply of Firestone SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch applied.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design Pressure: -120 psf (See General Limitation #9)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type A(7): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the existing deck with TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in 3-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, SBS Premium FR Torch UltraWhite, APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch applied to the base sheet
OR
One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS Premium adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design Pressure: -210 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type A(8): One or more layers of insulation adhered with approved adhesive to existing BUR; membrane torch applied.

All General and System Limitations apply.

One or more layers of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL Minimum 2" thick	N/A	N/A

Note: Insulation shall be adhered to the existing deck with TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in 3-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick	N/A	N/A

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, I.S.O. Stick, I.S.O. FIX II, I.S.O. Twin Pack Insulation Adhesive or TITE-SET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20 in ribbons 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Primer: (Optional) SECUROCK Gypsum-Fiber Roof Board may be primed with ASTM D41 asphalt primer and allowed to dry prior to application of base sheet.

Base Sheet: One or more plies of Firestone SBS Glass Torch Base torch applied.

Membrane: One ply of Firestone SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch applied.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design Pressure: -262.5 psf (See General Limitation #9)



Membrane Type: APP

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type B(1): Base layers of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²
ACFoam-II Minimum 1.3" thick	See Deck System	1:2.67 ft ²
ENRGY 3, ENRGY 3 25 PSI Minimum 1.25" thick	See Deck System	1:3 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with Testing Application Standard TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	N/A	N/A

Note: Apply top layer of insulation in a full mopping of any approved mopping hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as Base Layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: One ply of Firestone MB Base adhered to the insulation with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.. If base sheet is applied directly to polyisocyanurate insulation, only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Ply Sheet: (Optional) One or more plies of Firestone MB Base, Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
OR
(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, in a flood coat of approved asphalt at an application rate of 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169, or APOC #212 at an application rate of 1½ gal./sq.

Maximum Design Pressure: -45 psf (See General Limitation #9.)

Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type B(2): Base layers of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²
ACFoam-II Minimum 1.3" thick	See Deck System	1:2.67 ft ²
ENRGY 3, ENRGY 3 25 PSI Minimum 1.25" thick	See Deck System	1:3 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with Testing Application Standard TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Approved Perlite Minimum ¾" thick	N/A	N/A

Note: Apply top layer of insulation in a full mopping of any approved mopping hot asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as Base Layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: One ply of Firestone MB Base, Firestone SBS Base, , Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet: (Optional) One or more plies of SBS Smooth or SBS Base Sheet, or Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.



OR

(Not with MB Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch adhered

OR

(Not with SBS Base, , SBS Smooth) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9.)

Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete

System Type B(3): Base layer of insulation mechanically fastened, top layer of insulation adhered with approved adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 2.0" thick	2 or 3 with 23	1:2 ft ²

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
DensDeck Prime Minimum ¼" thick	N/A	N/A

Note: Top layer of insulation shall be adhered with I.S.O. Twin Pack Insulation Adhesive or Millennium One Step Foamable Adhesive applied in ½ - ¾" wide ribbons spaced 12 in. o.c. or I.S.O. FIX II or I.S.O. Stick applied in ¾" – 1" wide ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet:	One or more plies of Firestone SBS Base, , SBS PolyBase, SBS Premium Base or SBS Smooth fully adhered to the insulation with Multi-Purpose MB Cold Adhesive squeegee applied at 1½ - 2 gal/sq.
Ply Sheet:	One or more plies of Firestone SBS Base, , SBS PolyBase, SBS Premium Base or SBS Smooth fully adhered to the insulation with Multi-Purpose MB Cold Adhesive squeegee applied at 1½ - 2 gal/sq. OR One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.
Membrane	One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite fully adhered to ply sheet with Multi-Purpose MB Cold Adhesive squeegee applied at 1½ - 2 gal/sq. OR One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

One ply of Firestone APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to ply sheet with Multi-Purpose MB Cold Adhesive squeegee applied at 1½ - 2 gal/sq.

Surfacing:

(Optional) Install one of the following.

1. Roof gravel in a flood coat of approved asphalt
2. Roof gravel in Multi-Purpose MB Cold Adhesive (SBS roof covers)

Maximum Design
Pressure:

–45 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete

System Type B(4): Base layer of insulation mechanically fastened, top layer of insulation adhered with approved adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck or DensDeck Prime Minimum ½" thick	2 or 3 with 23	1:2 ft²
Middle Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime Minimum ¼" thick	N/A	N/A
FiberTop E Minimum ½" thick	N/A	N/A

Note: Insulation shall be adhered to the deck with I.S.O. Twin Pack Insulation Adhesive applied in ½ - ¾" wide ribbons spaced 12 in. o.c. or with I.S.O. Stick or I.S.O. FIX II applied in ¾-1" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment

System 1:

Base Sheet: One ply of Firestone SBS Base, SBS Premium Base or SBS Smooth, Or One or more plies of Firestone Ply IV , Ply VI , Ply IV (4) M, or Ply VI (6) M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-25 lbs./sq..

Ply Sheet: (Optional) One or more plies of Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq.

OR

(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq.

OR

(Not with MB Base M) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered

OR

(Only when adhering to Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

System 2:

Base Sheet: One ply of Firestone SBS Poly Torch Base or SBS Glass Torch Base sheet, torch applied.

Membrane: One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the base sheet with the 3” sidelaps heat fused with a torch.

Surfacing: (Optional) Install one of the following.

1. Roof gravel in Multi-Purpose MB Cold Adhesive
2. Roof gravel in a flood coat of approved asphalt

Maximum Design
Pressure:

-45 psf (See General Limitation #9)

Membrane Type: SBS
Deck Type 7I: Recover
Deck Description: Concrete
System Type B(5): Base layer of insulation mechanically fastened, top layer of insulation adhered with approved adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA Minimum 1.5" thick	2 or 3 with 23	1:2.7 ft²
ISO 95+ GL or RESISTA Minimum 2.0" thick	2 or 3 with 23	1:4 ft²

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer (Optional)	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime Minimum ¼" thick	N/A	N/A
ISOGARD HD Minimum ½" thick	N/A	N/A

Note: Top layer of insulation shall be adhered with LiquiGard Membrane Adhesive applied in continuous ¾" – 1" wide ribbons spaced at a maximum 12 in. o.c. or applied with I.S.O. Twin Pack Insulation Adhesive applied in ½ - ¾" wide ribbons spaced 12 in. o.c. or I.S.O. FIX II or I.S.O. Stick applied in ¾" – 1" wide ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One ply of Firestone Ply IV (4) M, Ply VI (6) M, MB Base M, SBS Base, , SBS PolyBase, or SBS Premium Base are fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Membrane: Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite is fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the ply sheet with the 3" side laps heat fused with a torch.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq

Surfacing: (Optional) Install one of the following.

1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt

Maximum Design
Pressure:

-45 psf (See General Limitation #9)

Membrane Type: SBS
Deck Type 7I: Recover
Deck Description: Concrete
System Type B(6): Base layer of insulation mechanically fastened, top layer of insulation adhered with approved adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	2 or 3 with 23	1:1.6 ft ²

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: Top layer of insulation shall be adhered with LiquiGard Membrane Adhesive applied in continuous $\frac{3}{4}$ " – 1" wide ribbons spaced at a maximum 12 in. o.c. or applied with I.S.O. Twin Pack Insulation Adhesive applied in $\frac{1}{2}$ - $\frac{3}{4}$ " wide ribbons spaced 12 in. o.c. or I.S.O. FIX II or I.S.O. Stick applied in $\frac{3}{4}$ " – 1" wide ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One ply of Firestone Ply IV (4) M, Ply VI (6) M, MB Base M, SBS Base, SBS PolyBase, or SBS Premium Base are fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Membrane: Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite is fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the ply sheet with the 3" side laps heat fused with a torch.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq

Surfacing: (Optional) Install one of the following.

1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt.

Maximum Design
Pressure:

-75 psf (See General Limitation #7)

Membrane Type: APP
Deck Type 7I: Recover
Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel
System Type C(1): All layers of insulation simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Approved Perlite Minimum ¾" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, Multi-Max-3 Minimum 1.4" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One ply of Firestone MB Base adhered to the insulation with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.. If base sheet is applied directly to polyisocyanurate insulation, only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Ply Sheet: (Optional) One or more plies of Firestone MB Base, Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
OR
(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, in a flood coat of approved asphalt at an application rate of 60 lb./sq.
2. Karnak No. 97, No. 97 AF or No. 169, or APOC #212 at an application rate of 1½ gal./sq.

Maximum Design Pressure: -45 psf (See General Limitation #9.)



Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type C(2): All layers of insulation simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, Multi-Max-3 Minimum 1.4" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet:	One ply of Firestone MB Base, Firestone SBS Base, , Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Ply Sheet:	(Optional) One or more plies of SBS Smooth or SBS Base Sheet, or Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. OR (Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.
Membrane:	One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Not with MB Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch adhered

OR

(Not with SBS Base, , SBS Smooth) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9.)

Membrane Type: APP/SBS
Deck Type 7I: Recover, Insulated
Deck Description: Concrete
System Type C(3): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	2, 3, 10 (#14) or 20	1:2 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone SBS Base, SBS PolyBase, SBS Premium Base, SBS Smooth, APP 80 Glass Base fully adhered to the insulation with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Ply Sheet: (Optional) One ply of Firestone SBS Base, SBS PolyBase, SBS Premium Base or SBS Smooth fully adhered to the insulation with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Optional) One or more plies of Firestone SBS Glass Torch Base or SBS Poly Torch Base torch adhered.

Membrane: One ply of Firestone APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with SBS Smooth, APP 80 Glass Base) One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing:

(Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Steel

System Type C(4): All layers of insulation simultaneously attached.

One or more layers of any of the following insulations:

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Maximum 1.0" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISOGARD HD Minimum ½" thick	1 or 2 with 23	1:2.7 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone MB Base M, SBS Base, SBS PolyBase, SBS Premium Base fully adhered to the coverboard with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Membrane: One ply of Firestone APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Premium, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium FR, SBS Premium FR UltraWhite, fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with MB Base M) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Install one of the following.

1. Roof gravel in Multi-Purpose MB Cold Adhesive
2. Roof gravel in a flood coat of approved asphalt

Maximum Design Pressure: -45 psf (See General Limitation #9)

Membrane Type: APP

Deck Type 7I: Recover, Insulated

Deck Description: Concrete, Steel

System Type C(5): All layers of insulation simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer (Optional)	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA		
Minimum 1.5" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime		
Minimum ¼" thick	1 (Steel only), 2 or 3 (Concrete only) with 23	1:4 ft²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One ply Firestone APP 160-P torch applied.

Membrane: One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch applied.

Surfacing: (Optional) Install one of the following

1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt
2. Roof gravel in Multi-Purpose MB Cold Adhesive at 2.5 gal/sq

Maximum Design Pressure: -45 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete, Steel

System Type C(6): All layers of insulation simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer (Optional)	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA		
Minimum 1.5" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime		
Minimum ¼" thick	1 (Steel only), 2 or 3 (Concrete only) with 23	1:4 ft²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One ply of Firestone SBS Poly Torch Base sheet is torch adhered to the coverboard.

Membrane: One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the base sheet with the 3" sidelaps heat fused with a torch.

Surfacing: (Optional) Install one of the following.
 1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt
 2. Roof gravel in Multi-Purpose MB Cold Adhesive at 2.5 gal/sq

Maximum Design Pressure: -45 psf (See General Limitation #9)

Membrane Type: SBS
Deck Type 7I: Recover
Deck Description: Concrete or Steel
System Type C(7): Insulation mechanically fastened, membranes adhered with approved adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime Minimum ¼" thick	1 (Steel only), 2 or 3 (Concrete only) with 23	1:2.7 ft ²
ISO GARD HD Minimum ½" thick	1 (Steel only), 2 or 3 (Concrete only) with 23	1:2.7 ft ²

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Base Sheet: One ply of Firestone MB Base M, SBS Smooth, SBS Base, SBS PolyBase, or SBS Premium Base are fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Membrane: Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite is fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Surfacing: (Optional) Install one of the following.
1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt

Maximum Design Pressure: -45 psf (See General Limitation #9)

Membrane Type: APP/SBS
Deck Type 7I: Recover, Insulated
Deck Description: Concrete
System Type C(8): All layers of insulation simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 2" thick	2 or 3	1:1.33 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone SBS Base, SBS PolyBase, SBS Smooth, SBS Premium Base, or APP 80 Glass Base fully adhered to the insulation with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Membrane: One ply of Firestone APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with SBS Smooth, APP 80 Glass Base) One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch adhered to the base sheet.

OR

(Not with SBS Smooth, APP 80 Glass Base) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS Torch FR, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Not with APP 80 Glass Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design
Pressure:

-52.5 psf (See General Limitation #7)

Membrane Type: SBS
Deck Type 7I: Recover
Deck Description: Concrete
System Type C(9): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL or RESISTA		
Minimum 1.5" thick	2 or 3 with 23	1:1.8 ft²
Minimum 1.5" thick	2 or 3 with 23	1:1.6 ft²
Minimum 1.5" thick	2 or 3 with 23	1:1.3 ft²
Minimum 1.5" thick	2 or 3 with 23	1:1 ft²
Minimum 2.0" thick	2 or 3 with 23	1:1 ft²

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Base Sheet: One ply of Firestone Ply IV (4) M, Ply VI (6) M, MB Base M, SBS Base, SBS PolyBase, or SBS Premium Base are fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Ply Sheet: (Optional) One ply of Firestone Ply IV (4) M, Ply VI (6) M, MB Base M, SBS Base, , SBS PolyBase, or SBS Premium Base are fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

Membrane: Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite is fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the ply sheet with the 3" side laps heat fused with a torch.

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq

OR

(Only with Type IV or Type VI felts) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq

Surfacing: (Optional) Install one of the following.

1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt

Maximum Design Pressure: -60 psf; 1.5" thick – at a fastener density of 1:1.8 ft² (See General Limitation #7)
-82.5 psf; 1.5" thick – at a fastener density of 1:1.6 ft² (See General Limitation #7)
-90 psf; 1.5" thick – at a fastener density of 1:1.3 ft² (See General Limitation #7)
-97.5 psf; 1.5" thick – at a fastener density of 1:1 ft² (See General Limitation #7)
-135 psf; 2" thick – at a fastener density of 1:1 ft² (See General Limitation #7)

Membrane Type: APP

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type D(1): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	N/A	N/A
ACFoam-II Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, ISO 95+ GL or RESISTA Minimum 1.4" thick	N/A	N/A
Multi-Max-3 Minimum 1.5" thick	N/A	N/A

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet:	One ply of Firestone MB Base or MB Base M with a 4" side lap mechanically fastened to the deck through the insulation as described below:
Fastening:	Fasten base sheet with approved fasteners at the side lap 12" o.c. and two rows staggered in the center of the sheet 18" o.c.
Ply Sheet:	(Optional) One or more plies of Firestone MB Base, Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Membrane:	One ply of Firestone j APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, applied by torch parallel to the base ply, with the overlaps staggered 12".
Surfacing:	(Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following: <ol style="list-style-type: none">1. Gravel or slag at 400 lb. and 300 lb., respectively, in a flood coat of approved asphalt at an application rate of 60 lb./sq.2. Karnak No. 97, No. 97 AF or No. 169, or APOC #212 at an application rate of 1½ gal./sq.
Maximum Design Pressure:	-45 psf (See General Limitation #9.)



Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type D(2): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	N/A	N/A
ACFoam-II Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI, ISO 95+ GL or RESISTA Minimum 1.4" thick	N/A	N/A
Multi-Max-3 Minimum 1.5" thick	N/A	N/A

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Approved Perlite Minimum ¾" thick	See Deck System	1:2 ft ²

Note: Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet:	One ply of Firestone MB Base, SBS Base with a 4" side lap mechanically fastened to the deck through the insulation as described below:
Fastening:	Fasten anchor sheet with approved fasteners at a 4" side lap 18" o.c. and two rows staggered in the center of the sheet 36" o.c.
Ply Sheet:	(Optional) One or more plies of SBS Smooth, SBS Base Sheet or Firestone Ply IV , Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Membrane:	One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Not with MB Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch adhered

OR

(Not with SBS Base, , SBS Smooth) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9.)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type D(3): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: Top layer of insulation shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base M mechanically fastened to the deck through the insulation with Firestone Heavy Duty Fasteners and Insulation Fastening Plates applied 12" o.c. through the 4" wide base sheet overlaps and 12" o.c. in 2 rows equally spaced and staggered in the field of the base sheet.

OR

One ply of Firestone SBS PolyBase mechanically fastened to the deck through the insulation with Firestone All-Purpose or Heavy Duty fasteners and 2" Barbed Seam Metal Plates applied 12" o.c. through the 4" wide base sheet overlaps

Membrane: One ply of Firestone APP 170 Cool, APP 180 Cool or APP 180 FR Cool fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

OR

One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch adhered to the base sheet.

OR

(Not with MB Base M) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered to the base sheet with hot asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.

Maximum Design
Pressure:

-45 psf (See General Limitation #9)

Membrane Type: APP/SBS

Deck Type 7I: Recover, Insulated

Deck Description: Lightweight Insulating Concrete, min. 250 psi

System Type D(4): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

Deck: Min. 22 ga., 1.5" type B, steel deck shall be attached to steel channel-framing joists. The joists are to be spaced 6' o.c. The metal deck shall be fastened with 5/8" puddle welds at 6" o.c. along the perimeter of the test frame, one 5/8" weld in each flute of the metal deck along the joist in the field of the test frame and at 6" o.c. along the side laps with #10 self drilling screws.

A 1/4" thick slurry of lightweight insulating concrete shall be placed over the deck. A layer of Dyplast EPS board with a minimum density of 1.0 pcf shall be firmly pressed over the slurry followed by an additional layer of lightweight insulating concrete to a minimum thickness of 2".

Vapor Barrier: A BUR System is installed over 2" minimum thickness of lightweight insulating concrete.

One or more layers of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Prime Minimum 1/2" thick	N/A	N/A

Note: Top layer of insulation shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base M with a 2" side lap mechanically fastened through the DensDeck Prime and the lightweight concrete to the steel deck as described below:

Fastening: Firestone Heavy-Duty fasteners and 3" insulation plates at the side lap 9" o.c. and two rows staggered in the center of the sheet 9" o.c.

Ply Sheet: One or more plies of Firestone SBS Base adhered to the base sheet in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS FR Cap, SBS FR Cap UltraWhite, SBS Cap, SBS Cap UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, adhered to the ply sheet in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1 1/2 gal/sq.

Maximum Design

Pressure: -82.5 psf (See General Limitation #7)



Membrane Type: SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type D(5): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: Top layer of insulation shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base M with a 4" side lap mechanically fastened through the insulation to the deck with Firestone Heavy-Duty fasteners and plates or Firestone Concrete Drive at a spacing of 12" o.c. within the 4" side lap and two staggered rows, equally spaced in the center of the sheet, 12" o.c.

Ply Sheet: One ply Firestone SBS Glass Torch Base, torch applied to the base sheet with the 3" side laps are heat fused with a torch.

Membrane: Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch applied to the ply sheet. Minimum 3" side laps are heat fused with torch.

Surfacing: (Optional) Install one of the following.
1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt
2. Roof gravel in Multi-Purpose MB Cold Adhesive at 2.5 gal/sq

Maximum Design Pressure: -82.5 psf (See General Limitation #7)

Membrane Type: SBS

Deck Type 7I: Recover, Insulated

Deck Description: Concrete

System Type D(6): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ISO 95+ GL or RESISTA Minimum 1.5" thick	N/A	N/A

Note: Top layer of insulation shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone SBS Poly Torch Base Sheet with a 4" side lap mechanically fastened through the insulation to the deck with Firestone Heavy-Duty fasteners or Firestone Concrete Drives and Insulation Fastening Plates at a spacing of 12" o.c. within the 4" side lap and two staggered rows, equally spaced in the center of the sheet, 12" o.c.

Ply Sheet: One ply Firestone SBS Poly Torch Base Sheet, torch applied to the base sheet with the 3" side laps are heat fused with a torch.

Membrane: One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite cap sheet torch adhered to the ply sheet with the 3" side laps heat fused with a torch.

Surfacing: (Optional) Install one of the following.
1. Roof gravel at 400 lb/sq in a flood coat of approved asphalt
2. Roof gravel in Multi-Purpose MB Cold Adhesive at 2.5 gal/sq

Maximum Design Pressure: -82.5 psf (See General Limitation #7)

Membrane Type: APP

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type E(1): Base sheet mechanically fastened.

All General and System Limitations apply.

Base Sheet: One ply of Firestone MB Base or MB Base M with a 4" side lap mechanically fastened to the deck as described below:

Fastening: Fasten base sheet with approved fasteners at the side lap 12" o.c. and two rows staggered in the center of the sheet 18" o.c.; see System Limitation #5.

Ply Sheet: None.

Membrane: One ply of Firestone APP 180, APP 180-P, APP 180 UltraWhite, APP 180 FR, APP 180 FR UltraWhite, torch applied to the base ply.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1½-3 gal./sq.

Maximum Design Pressure: -45 psf (See General Limitation #9.)

Membrane Type: SBS

Deck Type 7I: Recover

Deck Description: Concrete/lightweight concrete/cementitious wood fiber/wood/steel

System Type E(2): Base sheet mechanically fastened.

All General and System Limitations apply.

Base Sheet: One ply of Firestone MB Base, SBS Base with a 4" side lap mechanically fastened to the deck through the insulation as described below:

Fastening: Approved fasteners at a 4" side lap 18" o.c. and two rows staggered in the center of the sheet 36" o.c.; see System Limitation #5.

Ply Sheet: (Optional) One or more plies of SBS Smooth, SBS Base Sheet, or Firestone Ply IV, Ply IV (4) M, Ply VI or Ply VI (6) M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Membrane: One ply of Firestone SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Smooth, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

OR

(Not with MB Base) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

OR

One ply of Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite, torch adhered

OR

(Not with SBS Base, , SBS Smooth) One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR or SBS Premium FR UltraWhite cap sheet fully adhered to the base sheet with Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Any coating, listed below, used as a surfacing, must be listed within a current NOA. Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design Pressure: -45 psf (See General Limitation #9.)

Membrane Type: SBS
Deck Type 7I: Recover
Deck Description: Lightweight concrete
System Type E(3): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base, SBS Base, SBS PolyBase, SBS Smooth or SBS Premium Base mechanically fastened as described below.

Fasteners: Firestone 1.7 in. Assembled LWC Base Ply Fasteners or ES Products FM-90 fasteners at a fastener spacing of 9" o.c. at the 4" wide side laps and 12" o.c. in two rows staggered in two equally spaced rows in the field of the base sheet. Lap fasteners are in-line perpendicular to the laps.

Ply Sheet: One ply of SBS Glass Torch Base or Poly Torch Base, torch applied.

Membrane: Firestone SBS Torch, SBS Torch UltraWhite, SBS FR Torch, SBS FR Torch UltraWhite, SBS Glass FR Torch, SBS Glass FR Torch UltraWhite, SBS Premium Torch, SBS Premium Torch UltraWhite, SBS Premium FR Torch or SBS Premium FR Torch UltraWhite torch applied.

OR

One ply of Firestone SBS Smooth, SBS Cap, SBS Cap UltraWhite, SBS FR Cap, SBS FR Cap UltraWhite, SBS Glass, SBS Glass FR, SBS Glass FR UltraWhite, SBS Premium, SBS Premium FR, SBS Premium FR UltraWhite fully adhered with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square. The minimum 3 in. wide side laps are sealed with LiquiGard Membrane Adhesive squeegee applied at a rate of 1.5 – 2.0 gal/square

Maximum Design Pressure: -60 psf (See General Limitation #7.)

RECOVER SYSTEM LIMITATIONS:

1. All System Limitations and General Limitations shall apply. See specific deck type Notice of Acceptance for deck type System Limitations.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq.

Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.

5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant. **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 9N-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



NOA No.: 11-0119.08
Expiration Date: 03/08/16
Approval Date: 05/02/13
Page 59 of 59